

From: Don.Essig@deq.idaho.gov
Sent time: 01/19/2012 11:32:47 AM
To: Cope.Ben@epamail.epa.gov
Subject: RE: Treaty Review: STT Water Quality Work Group Discussion of Temperature Metrics, Locations and Models

Thanks Ben. I was tempted to chime in on yesterday's call and defend RBM10, but did not because I did feel qualified to do so, do not know it as well as you do.

It did occur to me, and I am glad you allude to it in your 3rd comment, what's the point of modeling stratification, or hourly variation, of cross-section heterogeneity if they are not spoken to by the water quality standards, would not inform compliance with the standards.

Don A. Essig

WQS / Idaho DEQ
208-373-0119

"Reading without reflecting is like eating without digesting."

From: Ben Cope [mailto:Cope.Ben@epamail.epa.gov]

Sent: Thursday, January 19, 2012 10:34 AM

To: Stewart Rounds

Cc: Etheridge, Alexandra B.; Agnes LUT; aja.decoteau@critfc.org; Paulson, Anthony J.; baptista@stccmop.org; bard@critfc.org; bbukantis@mt.gov; beaup@dcpud.org; bgkoehler@bpa.gov; bmarotz@mt.gov; Duffe, Bruce J NWP; Adkins, Candice B.; ccorbett@lcrep.org; Chad.brown@ecy.wa.gov; Chbr461@ecy.wa.gov; Lay, Clyde H.; crossley@spokanetribe.com; djay@cecs.pdx.edu; Don Essig; Nilsen, Elena B.; gary.passmore@colvilletribes.com; Gelfenbaum, Guy R.; Fuhrer, Gregory J.; hefj@critfc.org; james.l.britton@usace.army.mil; jcboyer@bpa.gov; Major, Jon J.; jogr461@ecy.wa.gov; Kconn@usgs.gov; Hatch, Keith; Keitht@chelanpud.org; Easthouse, Kent B NWS; Johnson, Kimberly O NWD; lauren@integratedwatersolutions.net; LCasey@NWCouncil.org; Postlethwait, Lori; 'LUT Agnes'; Lyndal.L.Johnson@noaa.gov; Rea, Matt; Michael.I.Schneider@usace.army.mil; Michelle.smith@chelanpud.org; Wood, Molly S.; Nancy Stephan; Paul Wagner; RAnnear@Geosyntec.com; rapfelbeck@mt.gov; Rhendr1@gcpud.org; Rick Kruger; Stewart A Rounds; scott.e.english@usace.army.mil; Cox, Stephen E.; ShaneB@dcpud.org; Parkinson, Sharon E; Steve.T.Juul@usace.army.mil; tdresse@gcpud.org; Terry Buchholz; 'Lundell, Tina M NWP'; tjllewellyn@bpa.gov; 'Frantz, Waikale M.'; waikele.hampton@chelanpud.org; 'Proctor, William D NWD'

Subject: Re: Treaty Review: STT Water Quality Work Group Discussion of Temperature Metrics, Locations and Models

All –Sorry I missed the meeting yesterday. Our office was closed (snow).

A few comments:

- I have not seen a compelling argument for building a new temperature model of the Columbia/Snake. There is an existing 1D model (RBM10) that meets all of the criteria in Bill Proctor's presentation, and possibly even two models (MASS1 developed by PNNL). So it is very unclear how building/stitching a new W2 model of the entire basin is "efficient" per the presentation.
- Question: Does the Treaty alternatives analysis require investigation of changes in stratification behind the dams (e.g., predicted surface temperature of an impoundment) or is the cross sectional average temperature of the river an acceptable metric for comparison of alternatives? The answer sends us in the direction of a 1D or 2D model.
- I can support this new W2 project if the new model will be of sufficient quality to develop TMDLs and/or other Clean Water Act related analyses for the basin (and/or subbasins). Otherwise, pending a definitive answer to the 1D vs 2D question above, I do not see a good cost-benefit basis for a new W2 model.
- Along the same lines (future use), if the W2 project moves forward, I'd request a commitment from the Treaty workgroup and contracting agencies that a new W2 model will be fully documented and shared with all agencies of the workgroup (including EPA and the states) upon completion. This means making all model source code and input files available via ftp or mailed CDs.

Thanks for the discussion. -BC

Ben Cope, Environmental Engineer
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-----Stewart Rounds <sarounds@usgs.gov> wrote: -----

To: "Parkinson, Sharon E" <SParkinson@usbr.gov>
From: Stewart Rounds <sarounds@usgs.gov>
Date: 01/19/2012 08:37AM
Cc: Terry Buchholz <terry@integratedwatersolutions.net>, "Etheridge, Alexandra B." <aetherid@usgs.gov>, Agnes LUT <agnes.lut@state.or.us>, "aja.decoteau@critfc.org" <aja.decoteau@critfc.org>, "Paulson, Anthony J." <apaulson@usgs.gov>, "baptista@stccmop.org" <baptista@stccmop.org>, "bard@critfc.org" <bard@critfc.org>, "beaup@dcpud.org" <beaup@dcpud.org>, "bgkoehler@bpa.gov" <bgkoehler@bpa.gov>, "bmarotz@mt.gov" <bmarotz@mt.gov>, "bbukantis@mt.gov" <bbukantis@mt.gov>, "Adkins, Candice B." <cadkins@usgs.gov>, "ccorbett@lcrep.org" <ccorbett@lcrep.org>, "Chad.brown@ecy.wa.gov" <Chad.brown@ecy.wa.gov>, "Chbr461@ecy.wa.gov" <Chbr461@ecy.wa.gov>, "Lay, Clyde H." <Clay@usbr.gov>, Ben Cope/R10/USEPA/US@EPA, "crossley@spokanetribe.com" <crossley@spokanetribe.com>, "djay@cecs.pdx.edu" <djay@cecs.pdx.edu>, "don.essig@deq.idaho.gov" <don.essig@deq.idaho.gov>, "Duffe, Bruce J NWP" <Bruce.J.Duffe@usace.army.mil>, "Easthouse, Kent B NWS" <Kent.B.Easthouse@usace.army.mil>, "Nilsen, Elena B." <enilsen@usgs.gov>, "gary.passmore@colvilletribes.com" <gary.passmore@colvilletribes.com>, "Gelfenbaum, Guy R." <gelfenbaum@usgs.gov>, "Fuhrer, Gregory J." <gjfuhrer@usgs.gov>, "hefj@critfc.org" <hefj@critfc.org>, "Johnson, Kimberly O NWD" <Kimberly.O.Johnson@usace.army.mil>, Nancy Stephan <nstephan@bpa.gov>, "Rea, Matt" <matt.t.rea@usace.army.mil>, "james.l.britton@usace.army.mil" <james.l.britton@usace.army.mil>, "jcboyer@bpa.gov" <jcboyer@bpa.gov>, "Major, Jon J." <jimajor@usgs.gov>, "jogr461@ecy.wa.gov" <jogr461@ecy.wa.gov>, "Kconn@usgs.gov" <Kconn@usgs.gov>, "Hatch, Keith" <Keith.Hatch@bia.gov>, "Keitht@chelanpud.org" <Keitht@chelanpud.org>, "lauren@integratedwatersolutions.net" <lauren@integratedwatersolutions.net>, "LCasey@NWCouncil.org" <LCasey@NWCouncil.org>, "Lyndal.L.Johnson@noaa.gov" <Lyndal.L.Johnson@noaa.gov>, "Michael.I.Schneider@usace.army.mil" <Michael.I.Schneider@usace.army.mil>, "Michelle.smith@chelanpud.org" <Michelle.smith@chelanpud.org>, "Wood, Molly S." <mswood@usgs.gov>, Paul Wagner <paul.wagner@noaa.gov>, "RAnnear@Geosyntec.com" <RAnnear@Geosyntec.com>, "rapfelbeck@mt.gov" <rapfelbeck@mt.gov>, "Rhendr1@gcpud.org" <Rhendr1@gcpud.org>, Rick Kruger <rick.kruger@state.or.us>, "scott.e.english@usace.army.mil" <scott.e.english@usace.army.mil>, "Cox, Stephen E." <secox@usgs.gov>, "ShaneB@dcpud.org" <ShaneB@dcpud.org>, "Steve.T.Juul@usace.army.mil" <Steve.T.Juul@usace.army.mil>, "tdresse@gcpud.org" <tdresse@gcpud.org>, "tjlewelllyn@bpa.gov" <tjlewelllyn@bpa.gov>, "waikele.hampton@chelanpud.org" <waikele.hampton@chelanpud.org>, "Postlethwait, Lori" <LPostlethwait@usbr.gov>, "Proctor, William D NWD" <William.D.Proctor@usace.army.mil>, "Frantz, Waikele M." <Waikele.Frantz@chelanpud.org>, 'LUT Agnes' <LUT.Agnes@deq.state.or.us>, Ben Cope/R10/USEPA/US@EPA, "Lundell, Tina M NWP" <Tina.M.Lundell@usace.army.mil>, Stewart A Rounds <sarounds@usgs.gov>

Subject: Re: Treaty Review: STT Water Quality Work Group Discussion of Temperature Metrics, Locations and Models

Hi.

SNTEMP and SSTEMP are very good models when used for their intended purposes. I am not sure, however, that our needs can be met with those tools.

Just for everyone's information, SSTEMP (Stream Segment TEMPerature model) is a much-scaled down version of SNTEMP (Stream Network Temperature Model). SSTEMP handles only single stream segments for a single time period (e.g., month, week, day), is best used for a variety of simple cases, and is especially useful as a teaching tool and a sensitivity analysis tool.

SNTEMP is a one-dimensional stream temperature model that handles large branched stream networks, has a full heat budget, and is useful for evaluating many problems and for use with instream biological assessments. Its major drawback for our purposes is that it uses a dynamic temperature, steady-state flow formulation. Flows are assumed to be essentially constant for the model averaging period, which is a minimum of one day. More information can be obtained at <http://www.fort.usgs.gov/Products/Software/SNTEMP/>. It's a good model, and has many uses, but I'm not sure it is suitable for our needs in evaluating conditions in the Columbia River system that will include widely varying flows. Of course, different opinions are welcome.

Hope this helps.

-Stewart Rounds
USGS

On 1/19/2012 7:54 AM, Parkinson, Sharon E wrote:

> All,
>
> Just one house keeping item: The reservoir temperature model we are using is CE-QUAL-W2. QUAL 2E is a 1-D nutrient model. I have also included the document describing the heat budget model of the Columbia River System developed by EPA back in 2001. Only concern I have is with it calibrating to today's operations. They noted in the report that Lake FDR is modeled with CEQUAL W2 and the tailrace (head of Chief Joseph) is used in the RBM10 analysis. In addition, meteorological data infill was used to complete the period of record for their analyses at various locations.
>
> I would encourage the evaluation of SNTEMP or SSTEMP models developed by the USGS. They are simplistic 1-D models that I have utilized in the past that provide reasonable results for the study objectives that we were trying to accomplish at the time. Based on our conversations yesterday, it would be worth looking into as well.
>
> I appreciated the discussions yesterday, and looking forward to the next one!
>
> Sharon
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> Sharon Parkinson, P.E.
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> *From:*Terry Buchholz [<mailto:terry@integratedwatersolutions.net>]
> *Sent:* Wednesday, January 18, 2012 8:48 PM
> *To:* Etheridge, Alexandra B.; Agnes LUT; aia.decoteau@critfc.org; Paulson, Anthony J.; baptista@stccmop.org; bard@critfc.org; beaup@dcpud.org; bgkoehler@bpa.gov; bmarotz@mt.gov; bbukantis@mt.gov; Adkins, Candice B.; ccorbett@lcrep.org; Chad.brown@ecy.wa.gov; Chbr461@ecy.wa.gov; Lay, Clyde H.; cope.ben@epa.gov; crossley@spokanetribe.com; djay@cecs.pdx.edu; don.essig@deq.idaho.gov; Duffe, Bruce J NWP; Easthouse, Kent B NWS; Nilsen, Elena B.; gary.passmore@colvilletribes.com; Gelfenbaum, Guy R.; Fuhrer, Gregory J.; hefj@critfc.org; Johnson, Kimberly O NWD; Nancy Stephan; Rea, Matt; james.l.britton@usace.army.mil; jcboyer@bpa.gov; Major, Jon J.; joqr461@ecy.wa.gov; Kconn@usgs.gov; Hatch, Keith; Keitht@chelanpud.org; lauren@integratedwatersolutions.net; LCasey@NWCouncil.org; Lyndal.L.Johnson@noaa.gov; Michael.1.Schneider@usace.army.mil; Michelle.smith@chelanpud.org; Wood, Molly S.; Paul Wagner; RAnnear@Geosyntec.com; rapfelbeck@mt.gov; Rhendr1@gcpud.org; Rick Kruger; Rounds,
> Stewart A.; scott.e.english@usace.army.mil; Cox, Stephen E.; ShaneB@dcpud.org; Parkinson, Sharon E; Steve.T.Juul@usace.army.mil; tdresse@gcpud.org; tjllewellyn@bpa.gov; waikele.hampton@chelanpud.org; Postlethwait, Lori; 'Proctor, William D NWD'
> *Cc:* 'Frantz, Waikele M.'; 'LUT Agnes'; 'Ben Cope'; 'Lundell, Tina M NWP'; lauren@integratedwatersolutions.net
> *Subject:* Treaty Review: STT Water Quality Work Group Discussion of Temperature Metrics, Locations and Models
> *Importance:* High
>
> STT Water Quality Work Group:
>
> Thank you for your participation in the Temperature/TDG Sub-Group webmeeting today. Meeting notes will be distributed next week, but I wanted to make sure that you had the action items from today's meeting. The ACTION ITEMS are as follows:
>
> 1.Issue a Request for Proposals (RFP) for the development of the Lower Columbia River CEQUAL-2E models. */(NWP [Bruce Duffe] by January 27, 2012)/*
>
> 2.Issue a Request for Proposals (RFP) for the "stitching together" the mainstem Columbia River CEQUAL-2E. This will include the development of the model framework. */(NWP [Bruce Duffe] by February 4, 2012)/*
>
> 3.Send a request to mid-Columbia PUDs with regards to the use of existing mid-Columbia temperature models and the potential of developing CEQUAL-2E models for the mid-Columbia reaches that do not CEQUAL-2E models. */(NWD [Bill Proctor] by January 25, 2012)/*
>

> 4. Evaluate existing analytical methods that could be used as a.) Qualitative tools to evaluate temperature changes both spatially and temporally for a range of treaty alternatives; and/or b.) A Back-up if CEQUAL-2E models are not ready temperature modeling scoped in Iteration #2 and #3*/.
(USGS[Stuart Rounds] by February 11, 2012)/*
>
> We also decided to present the information for the above action items at the next STT Water Quality Work Group Meeting, scheduled for Wednesday, February 15^th from 1 - 4 pm. (Location TBD)
>
> Please let me know if you have any revisions/refinements to the Action Items. I willtrack progress for the Action Items on a weekly basis.
>
> Thank you,
>
> Terry Buchholz, PE, CWRE
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